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Our Own Staff College

By the Editor

Three months ago—2nd May 1955—Warren House, or I.C.I.'s Residential Staff Training Centre to use the official title, held its first course. Here is an account of a visit to this new I.C.I. venture, remarkable for its beautiful setting in large and lovely gardens.

I FIRST saw Warren House on one of those beautiful June days that really make one feel there is not so much wrong with our English summer after all. As I drove through Chelsea, across the Thames at Putney Bridge, and over Wimbledon Common, I wondered whether Warren House would really be all that I had been led to believe. At the top of Kingston Hill I turned off the main road. Soon I was pulling up outside one of those large red-brick gabled houses that could only have been built in spacious Victorian days when incomes were large at the top and small at the bottom.

With morale perhaps a shade on the low side—for Victorian architecture has never thrilled me—I rang the bell and was ushered through a series of pleasant and comfortably furnished rooms into the office of Commander C. T. Collett, R.N., Warden of the College.

"But you must come and see the gardens," were almost his first words after greeting me.

We stepped out through large french windows on to the lawns. And as we strolled, I felt a spell descending on me. These were not the sort of gardens I had expected at all. There was no sound of the busy bustling world I had just left, no sight of a neighbouring house. Lawns receded gently into trees and dipped into a glade profuse with rhododendrons, azaleas and dwarf Japanese maples. And beyond was a glimpse of more lawns and a rose garden.

"But where does the garden end?" I stammered, amazed to find myself apparently in the heart of the country.

"Actually," said Commander Collett, "we have

thirteen acres of garden. But these lead right to the edge of both Coombe Wood and Coombe Hill golf courses, and beyond is Wimbledon Common. Through the trees to the left, scarcely 500 yards away, is Richmond Park. So you see we are like a miniature estate set in a huge park on the edge of London.

"Look how well everything grows," he went on. We stopped to admire two trees from China, rarely grown in Britain outside the Botanical Gardens at Kew—the *Davidia Vitmoriniana*, or pocket handkerchief tree (so called because of its large white flowers), and the *Ailanthus Glandulosa*, or Tree of Heaven. Not so far away was a magnificent specimen of cedar *Atlantica Glauca* planted by Edward VII in 1907 while staying with the Paget family, from whom I.C.I. bought the property.

After a tour of the sunken rose garden, the croquet lawn and the tennis courts, we returned to the house, somehow now looking more mellow and inviting as it faced the lawns with the flowers and cool sunny fragrance.

"Let me take you into the loggia," said my guide. There some twenty-five Staff Course students sat in deck chairs with their backs to the garden, facing a table at which Mr. F. H. Perkins, I.C.I. Education Officer, presided with Viscount Stopford, Head of Office Administration Department, on his right and Mr. C. A. Moffatt, Paints Division Personnel Manager, on his left.

Under discussion was Case Study A. It was the true story of a small engineering works in the Midlands where, to cope with the growth of business, a

planning department under a go-ahead engineer had recently been introduced. This step had led to friction between the planners and the shop floor. Things finally came to a head one day when the foreman stormed into the works manager's office and said "Things were much better before planning ever came to this factory, and we would be much better off without it again."

Case Study Discussion

The problem presented to the Course was: "Analyse the situation and state what steps should be taken to put matters right."

This question had been dealt with by students divided into three syndicates, each with a chairman and a secretary. Each syndicate had discussed the problem separately and formulated its answers on two typed sheets of foolscap. The three syndicates' answers, introduced in a few words by the syndicate chairmen in turn, were now before the assembled company for discussion and comment and, above all, for guidance from the chairman's panel.

Viscount Stopford and Mr. Moffatt were at one in saying the problem was one of bad organisation rather than one of bad personnel relations.

"After all," said Mr. Moffatt, "this is the only blow-up of which we have evidence. In any group of people where there are real men, these things are bound to occur from time to time. "One syndicate," he went on, "has written that good personnel relations are essential to good organisation. This is the wrong way round. I would rather have put it: Good organisation is essential to good personnel relations."

"As I see it," said Viscount Stopford, "the important thing to be clear about is: how does the planning department fit into the line of management between works manager and shop floor? If the department is interposed into the line of management, then there is bound to be trouble. Its job is functional, not operational; functional in the sense that it is there to advise the works manager and take some of the load off his shoulders (at times, if you like, acting on his behalf and in his name) but not to transmit its own orders to the shop floor."

And so the discussion went on—young, keen minds pitted against and learning from age and experience. As a matter of fact, the chairman's panel did not have things all their own way, as when Mr. J. A. Donaldson of Wilton defended his syndicate's use of the words "final cause." He informed a rather astonished



WARREN HOUSE AS SEEN FROM THE LAWNS. *A putting competition is in progress.*

audience of the Aristotelean classification of five kinds of cause.

"I can only remember two," he said amid laughter: "the efficient cause and the final cause. Suppose there is no water for your bath. The efficient cause will be no water in the tap; but the final cause may be a drought."

On another morning I listened to the presentation of syndicate reports on the question "How are we to measure the efficiency of an industrial organisation?"

Throughout the fortnight's programme, comprising lectures, case studies and discussions, both formal and informal, concerning I.C.I.'s policy and practice, this question had been a recurrent theme. I was now witnessing the outcome of long hours of discussion and formulation of ideas by the students. They were seated round a U-shaped table in a magnificent gilded room, built as a ballroom in 1910 and inspired by the Hall of Mirrors at Versailles.

The three syndicate leaders were, as it happened, all production people—one a plant manager from Australia, another a Dyestuffs plant manager, and the third an engineer on the soda ash factory. Each argued his syndicate's view with conviction and ability, and each syndicate had approached the problem very dif-

ferently. It was as though a mountain had been scaled from different sides. To one syndicate the tests of efficiency to be applied were those which management could use; to another they were yardsticks which the community at large could employ; while a third syndicate astutely broke the problem down into efficiency criteria for different sections—production, sales, purchasing, research and so on.

This time Mr. A. R. Smith, Head of Intelligence Department at Head Office, was in the chair with Mr. P. T. Menzies, Deputy Treasurer, on his right and Mr. Grange Moore, Deputy Head of Central Work Study Department, on his left. The paramount point of the discussion was the thorny one: How far can we regard profits as a measure of efficiency?

"But can we even put as much faith as this in profits as a measure of efficiency?" interposed Mr. Grange Moore. "Oughtn't we to regard the object of industry as not so much to secure maximum profits but, in so far as is consistent with a reasonable level of profits, to provide the community with the goods and service it needs with the minimum consumption of resources?"

Here was a discussion providing plenty of food for thought with some very valuable guidance from Mr.



SYNDICATES DISCUSSING THEIR REPORTS IN THE CONFERENCE ROOM. *This room was built as a ballroom in 1910 and was inspired by the Hall of Mirrors at Versailles. Mr. F. H. Perkins, I.C.I. Education Officer, is in the chair, with Mr. R. A. Banks, Personnel Director, on his left and Mr. W. S. Bristowe, Head of Central Staff Department, on his right.*

Smith and Mr. Menzies and not a few brain-teasers. Mr. Grange Moore was particularly illuminating on the subject of productivity as a yardstick of efficiency.

"Do you mean productivity as compared with your own past, or as compared with your competitors, or as compared with a theoretical maximum output in relation to input of raw materials, services, labour and other resources?" he asked. "It is the theoretical standard which, I submit, is the one that is really worth while, which does not tie us to the past or to other people and which can spur us on to the biggest effort," he commented.

When the time came for me to leave Warren House it was with a real conviction that I.C.I. have made a very wise move in establishing this residential training centre, in a house that might almost have been built for the purpose, so conveniently are the rooms laid out. Here people from the Divisions, Regions, Head Office departments and from overseas as well can meet and think and rub ideas in something of the sedate atmosphere of a university college.

"In the old days," said Mr. F. H. Perkins, Education Officer, to me, "the boys were out to see a show at night. But here, after a few tilts at London, they

settle down in this beautiful atmosphere and enjoy the gardens, the putting green, the croquet, the tennis courts and each other's company."

He then showed me the schedule of the next six months—staff courses, commercial courses, work study officers' courses, export courses and others. And into this already tight programme may one day be introduced a course for higher management—if this is the correct interpretation to put upon the words of the Chairman, Dr. Fleck, when he said at the Annual General Meeting:

This new centre, with its residential facilities, will give greater opportunities for closer contacts between senior executives and other employees in the Company's service. The Board are particularly concerned with the training of those on whom the responsibilities of higher management may one day be expected to fall, for without imaginative management in the boardrooms as well as efficient management in the factories no business can prosper continuously.

To be on a course at Warren House is already for some an unusually pleasant and instructive experience. To many more it will soon be a much-sought-after objective.

CAR-FINISH EXPERT

At the Slough headquarters of Paints Division Bill Watson hurried into his car. "Blanks' paint superintendent has just phoned," he said; "they are in some kind of trouble there. And when you are painting hundreds of bodies a week trouble can't wait."

Blanks turned out to be a big car manufacturer, and the bodies were car bodies finished in 'Dulux' Stoving Car Finish. Bill, senior of six car-finish experts based on Slough, is on day and night call to give technical service in emergencies like this. Any upset on a paint line which finishes a dozen or so car bodies an hour (and that is slow by some standards) is an emergency, as I saw when we reached the factory. A worried paint superintendent led the way to the trouble spot. Car bodies moved relentlessly forward on the conveyor line, passing through the numerous stages of the painting process in twenty minutes each. Here and there a car had been hauled out of the line and was being pushed up to the "hospital" for defective jobs.

"It's this Thames Grey paint, Mr. Watson," said the superintendent. "Take a look at it." Bill bent down and peered at the paintwork, and so did I. It looked smooth enough to me, but Bill straightened up and said "Yes, it's bad all right—the build and gloss are too low. Have you got the batch number? I'd like to have a look at the mixing room too, if you don't mind."

As we made our way across the finishing shop, Bill and the paint superintendent talked flash rates, oven schedules, paint viscosities and other technicalities of the trade.

Bill spoke to the chargehand who prepares the paint in mixers which feed direct to the circulating system supplying the spray guns on the finishing line. He made notes of the paint's batch number and checked the viscosity of the circulating mixture of paint and thinner. "It's too heavy in consistency," he said. "Add 5% more thinner and I'll do a trial body myself."

On the way back to the paint shop he discussed the trouble with me. Car finishing, he said, was a very tricky business. Given all the care and the best paint in the world, snags still appeared. Blanks were renowned for the excellence of their work. The bodies were carefully degreased, primed, sealed, undercoated, rubbed, washed and dried. The air booths were water washed and air conditioned to ensure that no dust could mar the finish. At frequent stages of the finishing process the bodies were wiped with tacky rags as a further precaution, but still

things could occasionally go wrong. Weather conditions might affect the paint. Dust carried by an unusual wind might find its way through a chink in the precautions. Nor was the actual technique of spraying as easy as it looked.

"I carry a boiler suit in this briefcase," said Bill, "and many's the time I go into the spray booths myself to sort out the trouble. If necessary I live on the job for two or three days to see what's going wrong." After thirty years in the car-finishing business it has to be mysterious trouble indeed that eludes him.

In this case the first thing he did on returning to the finishing line was to demonstrate with practical accuracy that the paint was sound when put on at the right consistency, for Bill can spray as well as he can talk. The trial body passed inspection, but Bill still thought the finish could be improved and started checking on the oven temperatures. For this work he uses a recording thermometer which travels through the oven on the conveyor line. The chart showed that the baking schedule was below standard and adjustments to the oven controls were made. The second trial body went through and was fully satisfactory, both to Bill and to the works inspector. The line was running smoothly again.

The next day I telephoned Bill for the latest news of the trouble. "I've just phoned Blanks and checked that the line is still running on schedule," he told me, "and the plant suppliers will give the oven a check-over during the coming week-end." Bill had also checked the sample of that batch of paint retained at the Slough laboratories and had found it satisfactory, which confirmed the action he had taken on the finishing line.

This was a typical piece of trouble-shooting to be added to Bill's casebook. The paint line moved smoothly again, but he would continue to make routine visits to see that it continued to do so. He does the same for all the big car manufacturers in this country, and the paint lines in car assembly factories in Ireland, Belgium, Denmark, Sweden and Italy owe much of their design and technique to him. Nor does his interest in a car end when it leaves the factory. Small garages, large garages, technical colleges and trade associations continually call on Paints Division for lectures on car finishing and refinishing, and many a winter evening sees Bill driving out to the provinces or London suburbs to talk about the subject he knows so well.

M.J.D.

Bill Watson



Information Notes

A LANDMARK CONDEMNED

By L. J. Burrage (General Chemicals Division)

For fifty years that almost unique contraption, the Transporter, has connected the towns of Widnes and Runcorn, near Liverpool. Here is an epitaph on the passing of a famous and much discussed landmark, now scheduled for demolition so that a bridge may take its place.

IT is remarkable to think that in this mechanical age the town of Widnes with its 50,000 inhabitants is still connected with its fellow town of Runcorn on the opposite bank of the Mersey not by a bridge but by an almost unique* contraption known as the Transporter. This consists of two towers on either bank 200 ft. tall which carry high above the shipping a flimsy-looking structure 1000 ft. long from which is slung the transporter car. The car itself is like an airborne ferry. Worked by a system of pulleys and winches, it transports some twelve vehicles and 200 people at a time from shore to shore.

To Widnesians the Transporter has always been an

object of wonder, and even more so is it to those who have come from afar. It has certainly shaken all American visitors, not one of whom has left without taking at least one photograph to provide truthful evidence on his return home.

One very unkind crack at the Transporter's expense was made quite innocently only three or four years ago by an American visitor. Having travelled by rail from London to Liverpool, he was heard to enquire what was the suspension bridge he had seen in course of construction over the Mersey! Nor is this American the only person to have mistaken the Transporter. Motorists, under



THE ENGINEERS IN CHARGE OF THE CONSTRUCTION of the Transporter. Work is nearly finished, so the photograph must have been taken in 1904 or 1905.



THE TRANSPORTER AS ORIGINALLY CONSTRUCTED. The car seen here was later replaced by a lighter car to take weight off the bridge. This lightened the load by about 50 tons. In the old days the car was driven like a tram, but now it is towed from one side to the other.

the impression that they were coming to a suspension bridge, have been known to crash through the gates at the end of the road and hurtle into the river below.

The Transporter began its existence in 1905, having taken three and a half years to build. One point of special interest in these old photographs is the very solid construction of the car compared with the present-day unit. Originally the car was driven by geared motors on the trolley from which the car was suspended. This gave rise to numerous stoppages and breakdowns, and it was hailed as a vast improvement when shore-based winding gear was installed on the Widnes side.

There has always been a sort of malicious humour attached to the Transporter. On the coldest of winter days, when the contacts have iced up it has a habit of stopping running and forcing would-be travellers to abandon their cars, and if they want to get to the other side, to walk across the bleak pedestrian pathway of the railway bridge alongside. Only those who have experienced it can appreciate fully the rigours of this crossing at a bend in the river which seems to gather icy winds from all quarters.

The crossing by Transporter is always full of interest if not of trepidation. The look on the face of a newcomer

when a heavy lorry moves into the centre berth and causes the car to sag and shudder is something not easily forgotten. The nervous have a habit of looking upwards—not without due cause, because in spite of continual maintenance the Transporter sheds odd nuts and bolts or small wheels every so often.

An I.C.I. engineer once received the gift of a small pulley through the roof of his car and quoted the lines in the old song "They made him a present of Mornington Crescent and threw it a brick at a time." Even if these hazards are avoided, there is the excitement of watching the main beam sag as the car moves across. Many have been the discussions in the car itself as to which was preferable if the car fell into the river—should it be at low tide or at high? The answer is still debatable, for the experiment fortunately has never been carried out.

Incidentally, but for I.C.I. there would be still one more hazard to a Transporter crossing! Power cuts could have left the car dangling in midstream had not the Company made an arrangement whereby the authorities can cut into power from its West Bank power station. Thus the Company, if not actually a support of the Transporter, can certainly be described as a buttress.

*There are two other transporters in existence—one at Newport, Mon., and the other at Middlesbrough, Yorks.

HOW BIG IS I.C.I.?

By E. Evans (Head Office)

How big are we? Are we the largest chemical company in the world? And how are you to measure size? Should it be by turnover, by income or by assets? These and similar questions are discussed below.

How big is I.C.I.? Is it the largest chemical company in the world? Is it the largest industrial unit in the United Kingdom or even in the world? In this article an attempt is made to throw some light on these and similar questions.

The problem of measuring and comparing the size of different companies is not a simple one, for two reasons. The first is that there are alternative ways of measuring the size of a company, and they may give different results in order of ranking when companies are compared. The size of a person may be measured by his height, girth or weight; yet a tall person is not necessarily a fat one or a heavy one. Similarly, the size of an industrial organisation may be measured by such different units as numbers employed, turnover, net income or total assets; yet a company with a large turnover is not necessarily a large employer of labour, nor are its total assets necessarily large.

The second difficulty is that some or all of the required information may not be published or may be inappropriate in particular comparisons.

Before proceeding with the various comparisons it is as well to define the different units of measurement employed. *Turnover* is the total receipts from sales during a given period (usually a year) before deducting costs. *Net income* is the revenue of a company after all provisions have been made for taxation and depreciation and after deduction of all costs. *Total assets* are the sum total of all moneys invested in a business. The assets take various forms, e.g. land, buildings, plant and equipment (known

as fixed assets); cash, bank deposits, creditors, stock in hand (current assets); together with investments in other firms and goodwill.

A comparison between I.C.I. and the nationalised industries in this country can best be made on the basis of numbers employed, as details of turnover, assets and income for these industries are either not available or are not comparable with I.C.I. figures. In 1954 I.C.I. employees in the United Kingdom numbered about 110,000, while the latest available figures for the British Transport Commission are 865,000 (including 594,000 on the railways), for the National Coal Board 717,000, for the British Electricity Authority 185,000, and for the Gas Council 145,000.

It is not possible to make comprehensive comparisons between the larger companies in this country, as many of the statistics required—in particular turnover and numbers of employees—are not available. However, using figures of net income and total assets as shown in the latest consolidated accounts of the respective companies, those shown below appear to be among the largest.

	Net Income (£m.)	Total Assets (£m.)
British Petroleum Co.	24.3	356
I.C.I.	21.7	524
Unilever	19.1	315
British-American Tobacco Co.	18.6	292
Imperial Tobacco Co.	11.8	235
Ford Motor Co.	9.9	97

A word of warning is necessary on the interpretation of the figures of total assets given in company balance sheets. In most cases fixed assets are valued at their original cost

less depreciation, which bears little relation to replacement cost. I.C.I. is an exception, as in 1950 all fixed assets were revalued at current prices, thereby adding over £100m. to their previous balance sheet value.

Unilever Ltd., mentioned above, is often thought to be the largest company in the country. A distinction has, however, to be made between the operations of Unilever Ltd. in the United Kingdom and those of the Unilever Group, which embraces the British company, the Dutch sister concern, Unilever N.V., and the various overseas subsidiaries. Whereas the Group employs approximately 250,000 people throughout the world, Unilever Ltd. has about 50,000 employees in the United Kingdom.

Other companies which may well rank with some of the above and which would probably be included in the "top twenty" are Associated Elec-

trical Industries, British Motor Corporation, Distillers, Dunlop, Esso Petroleum, General Electric, Guest, Keen and Nettlefolds, P. & O. Steam Navigation, Shell Transport and Trading, and Vickers.

The largest privately owned (as opposed to nationalised) industrial units in the world are found, as one would expect, in the United States. It is estimated that . . . outstandingly large . . . in 1954 about two dozen companies had a turnover exceeding \$1000m. (£356m.). These industrial giants include General Motors Corporation (turnover £3496m., employees 577,000), United States Steel Corporation (turnover £1157m., employees 268,000) and the General Electric Company (turnover £1053m., employees 210,000). There are thus a large number of companies in the United States which on the basis of one or more of our criteria of size are larger than I.C.I.

Perhaps the most interesting comparison is between I.C.I. and the principal chemical companies in other countries. Numbers employed, turnover, net income and total assets of the largest chemical companies in the United Kingdom, U.S.A., Italy and Germany in 1954 are compared at the top of the next column.

The turnover and net income figures for Du Pont appear high in relation to the number employed. The reason for the high turnover is that Du Pont devotes a large proportion of its production facilities to the manufacture of high-value end products, e.g. Cellophane, nylon and other synthetic fibres, whereas the other companies are concerned to a greater extent with the production of basic heavy chemicals with a lower price/weight ratio. The high net income of Du Pont derives in part from a large



Company	Numbers Employed	Turnover	Net Income	Total Assets
I.C.I.	109,500	£m. 352	£m. 21.7	£m. 525
Du Pont (U.S.A.)	84,500	601	122.6	693
Union Carbide and Carbon Corporation (U.S.A.)	70,000 (inc. 16,000 in Govt. owned plants)	329	31.9	445
Allied Chemical and Dye Corporation (U.S.A.)	29,300	189	15.3	245
Montecatini (Italy)	60,000	72	4.9	218
Principal successor companies of former I.G. Farbenindustrie (Germany):				
Bayer	40,600	103	2.6	120
B.A.S.F.*	30,000	90	2.3	84
Hoechst	32,500	96	2.0	85

Foreign currencies have been converted to £ sterling at average 1954 exchange rates.

* Figures for B.A.S.F. exclude subsidiaries.

investment in the General Motors Corporation. As noted above, the asset values have little meaning as the result of the book values in balance sheets being so much below replacement costs.

There are, of course, many large chemical companies besides those shown in the table. They include Kuhlmann and Rhône-Poulenc in France, Union Chimique Belge in Belgium, Ciba in Switzerland and, in the U.S.A., Olin Mathieson, Dow Chemical, American Cyanamid and Monsanto Chemical. None of these is as large as I.C.I., but they are all important companies engaged principally in the manufacture of chemicals and allied products.

The large unit is in fact a feature of the chemical industry throughout the world. For many operations and plants there is a certain minimum scale below which it is not economic to go, while substantial economies can be secured by administering related processes as one unit.

From the foregoing certain broad deductions can be made.

First, I.C.I. is by no means the largest industrial unit in the United Kingdom; some of the nationalised industries are larger on the basis of number of employees. Second, I.C.I. is one of the largest companies in the country when measured by turnover, income and assets, and is probably the largest private employer. Finally—and this may well be the most important result of this brief analysis—in its scale of operations I.C.I. is not outstandingly large compared with the principal companies of the world, whether chemical or other.



Illustrated by Joan Milroy

Garden Notes

By Philip Harvey

THE pruning of raspberries is absurdly easy and should be carried out during August. Cut all fruiting canes down to soil level and tie in the new canes at the same time, just as you would for rambler roses. These prunings should be consigned to the bonfire and the ashes, which contain some potash, worked into the soil round the raspberries.

Leave not more than six canes to each "stool," chopping off the remainder, which usually emerge between the rows. (Ideally, these "suckers," as they are called, should be removed as they appear throughout spring and summer, but few of us garden strictly according to the textbook.) On light, sandy ground you can often pull up these superfluous canes without using a spade. Heavy land is another matter, and great care must be taken to avoid damaging the large number of surface roots produced by raspberry bushes.

Tipping of the new canes is best carried out in late February. Cut them back to a uniform height to remove any unripe or frosted wood, thereby concentrating growth in fewer buds (this means higher-quality raspberries).

July–September and March–April are the best periods for planting strawberries. Autumn and winter planting should be avoided, as the soil is not sufficiently warm. Having said this, I must warn you that to grow strawberries really well you must take

considerable trouble. They are far more exacting in their demands than raspberries, which will sometimes crop quite well on light, dry soils with little body.

If you grudge such trouble, remember that oft-quoted remark of Sydney Smith: "Though it were impious to doubt that the Almighty could have created a better fruit than the strawberry, the fact remains that He never did." Here then are the provisos, without which results will be indifferent.

Plant your strawberries in the highest part of the garden, always avoiding low sheltered corners alongside hedges. They are highly susceptible to spring frosts, which are invariably more damaging on low-lying ground. Strawberries will grow on most soils (except those with an excess of lime or chalk) provided drainage is satisfactory. Light, sandy soils will yield good crops, given sufficient rainfall and generous manuring.

Extra-thorough preparation of the soil is vital, and you cannot make it too rich. We cannot put on fifty tons of farmyard manure to the acre (this was the usual commercial practice thirty or forty years ago); but unless one is exceptionally lazy or very susceptible to lumbago there is no excuse for neglecting to dig two spits deep and working in generous quantities of compost, farmyard manure, leaf mould, peat, hop manure and bonemeal. Incorporate any or all of these in the whole depth and do your best to obtain some farmyard manure, as strawberries

always respond exceptionally well to this. There is no need to break the soil down to an extra fine tilth as you would for sowing flower and vegetable seeds, but it must be firm and free from weeds. If possible, plant in showery weather. Should dry weather set in, water until growth restarts. Plant firmly with a trowel. The roots must be spread out in the hole with the crown at soil level. Exposed roots are liable to wither and die, while deep planting leads to rotting of the crown.

Tread firmly round every plant as you finish each row and after a frosty spell firm again, as strawberries tend to rise from the soil during prolonged frost.

Have you sown some spring cabbage for cutting next spring? Where they succumb to winter weather the fault often lies with the gardener rather than the climate. Late transplanting is one reason for failure. It is absurd to plant out brassicas in late autumn or winter, when the soil is cold and rooting virtually impossible. Cabbage seedlings ought to be in their permanent quarters by the first week in October.

Spring cabbage is less fussy about soil than summer and autumn cabbage, Brussels sprouts, cauliflower, etc. Nevertheless, all brassicas do better where the land is on the heavy side and not deficient in lime. Do not sow in even slight shade. An open, sunny position is essential for best results.

Varieties of cabbage are legion, but some

only do well in certain parts of the country. Unless you are willing to experiment, it is always best to choose varieties which are known to succeed in your district. For example, All Heart and Mein's No. 1 are reliable varieties for northern and Scottish gardens. In the south and Midlands, Ellam's Early Dwarf is a good "doer" almost everywhere. Wheeler's Imperial can be sown in either spring or autumn and has a milder flavour than usual.

Gardeners are very conservative over their choice of spring flowering bulbs. I know it is easy to be snobbish about this and to recommend only the unfamiliar and obscure, but from long personal experience I can assure you that there are hosts of delightful bulbs which are inexpensive and just as easy to grow as the better-known species and varieties. A search through the catalogue of any bulb specialist will prove this.

Everyone grows crocuses, but those commonly found in gardens are the large-flowering varieties. The wild or species crocus bears smaller, more dainty blooms. *Crocus Tomasinianus*, a pale sapphire-lavender which often seeds itself, *C. Susianus*, a yellow and dark purple, and *C. Sieberi*, a pleasing lilac-blue, all bloom in March if planted now or next month. You probably know the blue Muscari or Grape Hyacinths, but the white form—*Muscari botryoides album*—is delightful for associating with the blue.



JOAN MILROY
237

Mountaineering

By B. R. Goodfellow (India Dept.)

Human beings seem to be of two kinds—those who are happiest in crowds and those who prefer the open spaces in the company of a few chosen friends. For the latter, here is a special pleading in favour of mountaineering.

Photographs by the author

My friends often ask me why I spend so much of my spare time climbing mountains. What is the point, they ask, of toiling and sweating up steep hillsides; why run risks “hanging on by the eyebrows” on fearful-looking rock climbs; why get up at 3 a.m. to climb an Alpine peak when anyone but a fool would stay in bed? Why spend holidays in the very places where it is most likely to rain hard and often?

The fascination is not easy to explain, and in the journals of climbers' clubs there are many articles by those who have tried to do so. It has been said that it is a way of life rather than a sport. Another has said—and I agree with him—that the perfect sport must have three qualities: it must take one into attractive surroundings, it must make one feel supremely fit, and it must have a slice of adventure to give it zest. There is much in both these sayings. Certainly those who have once been bitten by mountaineering never escape from its fascination, and no other sport fulfils the three qualities so completely.

Human beings seem to be of two kinds: those who are happiest in crowds, and those who prefer the open spaces in the company of a few chosen friends. Luckily for the second kind the vast majority prefer to spend their weekends in their tens of thousands at football matches and their holidays on crowded beaches.

The community of active hill lovers is small and the hills are spacious. Except in the popular and most accessible parts of Wales and the Lake District the walkers and the climbers have the hills to themselves more often than not. And if they happen to meet another party on a mountain top they are, as often as

not, friends or friends once removed. In February this year I climbed a famous snow gully on Ben Lui in the Highlands. Conditions were arctic, and we were utterly remote from the world we had left the evening before in Glasgow. On top we met another party. They were also from I.C.I., members of a climbing club they had founded in Dumfries.

It is in this contrast with our daily lives that much of the fascination of mountains lies. Most of us live in crowded cities and work in highly organised factories or offices where our surroundings are entirely man made. In the hills we are at once back to nature, for the streams run swift and clear, and in their valleys are natural woodlands and wild flowers, and the precipices climbing to the clouds bring the works of man to their proper insignificance. And on the mountain tops the air is clean and clear; the world of dust, smoke and noise is left behind far below.

Even in the relatively small hills of Britain there is something for every taste. He who is content to walk can reach every summit, except for those in the Cuillin Hills of Skye, and can enjoy all those pleasures, as well as the satisfaction of successful achievement. All he needs is to be reasonably fit, and to be properly



A PARTY RETURNING to one of the Swiss Alpine Club huts after climbing in the Arolla district. The large peak in the distance is the Dent Blanche (14,286 ft.).

equipped with clothing, map and compass, so that he can descend safely in sudden mist or storm.

Many walkers soon find that the more difficult the scrambles the more exciting they are, and the more they are worth doing. They progress from rambling to scrambling, which is usually defined as walking on steep ground with occasional use of the hands. There are many splendid scrambling routes on British hills; one of the best, and easiest to get to, is the north ridge of Tryfan, which goes straight from the main road through the centre of the Snowdon range to Tryfan's splendid triple rock summit. And the finest circuit south of the Border is the round of the Snowdon Horseshoe over the narrow rock route of Crib Goch. These scrambles call for good balance and a good head for heights.

The next stage forward is to rock climbing proper,

where difficult routes are sought deliberately. In the hills of Britain, which have long since been smoothed down by the glaciers of the ice age, rock precipices are exceptional and can always be avoided; but, luckily for those who enjoy steep rocks, there are enough of these crags in North Wales and the Lake District to provide abundant climbs for all, and the rock is as firm and as solid as any in the world.

Many hundreds of rock climbing routes have been made on these crags. The best of them may give continuous climbing up buttresses or gullies for as much as 800 ft. in height, and the routes vary in difficulty from those which are easy enough scarcely to need rope for security, through every stage to the very severe courses of difficulty almost inconceivable to the layman.

I am often asked how a rope aids the safety of a party, for it might seem that if one man falls he would



A SNOW RIDGE on the frontier of France and Italy in the Mont Blanc district. The rock tower is the Dent du Géant (13,120 ft.), one of the last Alpine summits to be climbed.

pull his companions off. Craggs are weathered into cracks and ledges and shattered by frost into spikes and pinnacles. Even the leader climbing a steep wall or crack can usually hitch his rope as he climbs and so restrict any fall; but it is a cardinal rule that a leader should never fall. When he reaches a ledge where he can halt he ties himself on to a suitable belay, and the rest of the party can then follow him up, held on the rope by the leader in absolute safety.

The hill walker, scrambler and the rock climber must still graduate to one further important branch of technique before he can become a complete mountaineer: this is snow and ice climbing. A good deal of this can

be learned in Britain in the winter months, when snow conditions can transform the simple routes of summer into serious expeditions which only those who know what they are about should attempt. In the longer and harder Scottish winter, ice climbing has been developed to extreme limits of difficulty, and on Ben Nevis one can be sure of good snow climbs until as late as June; but to learn the whole technique the would-be mountaineer must visit the bigger mountains which are above the snowline all the year round. For us in Britain, the Alps are the mountains to go to.

In the Alps one learns about glaciers, crevasses and icefalls; about slopes of bare ice perhaps 1000 ft. in height and up to 45° angle which must be climbed by cutting steps with an ice-axe and wearing crampons, or steel ice-claws, strapped to the feet. On the high ridges there will be cornices, those fragile waves of snow formed by wind which only the experienced eye can see from above. And one learns how to descend difficult rock when, in sudden storm, it is covered deeply in fresh snow. All these things take time to understand; in my opinion it needs an apprenticeship of seven seasons, each of a fortnight or so, of climbing in the Alps before the climber is wholly competent to lead a party up a first-class Alpine peak of 14,000 ft. or more.

In Britain, in the winter months, snow conditions can entirely transform the simple routes of the summer hill walker. He who does not understand snow climb-

ing should stay at home, but for the expert there are splendid snow and ice climbs to be done, especially in Scotland.

Ski-ing is essentially another branch of mountaineering, indispensable to those who wish to climb high in early spring. But rather like rock climbing in Britain, it has branched out to become a sport of its own, highly organised and highly mechanised. Luckily for the ski mountaineer, the majority are happy to slide in their thousands down the popular runs from the tops of the ski lifts.

It was the British Victorians who discovered, in the Alps a hundred years ago, the delights of climbing

for the fun of it. Today the Alps are still the most rewarding of all mountains for the holiday maker. They are easy to get to—far more accessible indeed than many parts of the Highlands of Scotland. There are numerous huts about the level of the snow line, from which climbers can start their expeditions without the need for a high-level bivouac. The Alpine peaks are exactly the right size. Any peak in the Alps can be climbed up and down in a normal day of eight to twelve hours on the move. They are big enough to satisfy the climber with a great sense of achievement and to stretch his muscles to their comfortable limit, and they are high enough to give a sense of being in an utterly different world of thin invigorating air, intensely blue sky and glittering ice and snow; yet they are not like the Himalayas, where weeks are needed for acclimatisation before a major peak can be attempted. Alpine peaks can be difficult enough to be beyond the powers of all but a few of us, yet most of them by the ordinary routes are straightforward enough for any active man well on in life.

My second quality for the perfect sport was that it must make one feel supremely fit. Of this I can only say that I know of nothing which can compare with the sense of well-being at the end of a day on the hills. Beer never tastes better or suppers as good as those which the knowing host provides for the returning climber. No wonder that mountaineers are famous for longevity. In the Alps last summer, climbing with my 15-year-old boy, we met the senior member of the Alpine Club. At the age of 86 he was still climbing, though he admitted he was beginning to go rather more slowly.

My third quality was the spice of adventure. Of course, there are dangers in mountaineering, and the newspapers never miss a chance to exploit the sensation of an accident. But no climber who has experienced the thrill of making his way up steep rock and along narrow snow ridges with absolute confidence in himself and his companions will ever agree that the risks are unjustifiable. And in fact nearly all



A SUMMER SNOWSTORM blowing off the Matterhorn. The ridges on the left and right are well-known routes, both difficult. The much easier ordinary route is up a ridge on the far side.

the mishaps are due to inexperience, and most of the rest are due to ambition. Personally, I feel much more insecure crossing a London street or being driven by some of my friends in their cars.

Finally, in favour of mountaineering is its cheapness. All the climber needs in the way of equipment is a pair of good boots, some weatherproof clothing and a rope, preferably of nylon; and for the Alps an ice-axe, a pair of crampons and snow goggles. Climbers' tastes are simple: they neither expect expensive hotels nor feel at ease in them. Indeed, they are often happiest when in camp in the midst of the mountains they have come to visit.

The Sport of Gliding

By J. J. Daly (Wilton Works)

"Soaring in silence above the countryside" is a phrase that epitomises the delights of gliding. Here is an enthusiast's report on a sport rapidly growing in popularity.

Photo by courtesy of Reader's Digest

THE ideal gliding club member must take it for granted that no one will care a twopenny damn whether he is a duke or a dustman."

This is how Philip Wills, Britain's foremost glider pilot, describes the spirit of the gliding movement in this country. At the club I belong to, the Yorkshire Gliding Club, we have yet to sign up either a duke or a dustman, but our membership does include a miner, a typist, a professor, a housewife, three young engineering apprentices, and many people like myself who have much less money than enthusiasm.

Enthusiasm you do need. In the average small British gliding club a member may be called on to do anything from repairing a winch to organising a dance or washing up dishes. For every hour's flying he gets he may do five or six hours' work on the ground. Most clubs, with their £5 5s. annual subscription and 15s. an hour charge for gliding, are sailing dangerously near the financial rocks. And yet they keep going.

"Is it difficult?" and "Is it dangerous?" are two questions glider pilots are often asked. The answer to both is No. As to the difficulty, the average person will go solo after eight hours' dual instruction in a primary trainer. It is no particular credit to me that I went solo in four hours, because I had already learned to fly light powered craft when I came to gliding.

The danger is very slight. Flying high-performance sailplanes in mountainous country can be treacherous, admittedly, and two very accomplished pilots lost their lives in the Alps during the international com-

petitions in 1948. But club gliding in this country holds little danger except for the foolish or the foolhardy—and they are not likely to be allowed in the air alone.

One of the great attractions of gliding is that it offers a form of flight nearer to that of birds than anything man has achieved. The design of a glider, and even more so that of a high-performance sailplane, is remarkably like the form of great birds such as seagulls, eagles and vultures. Gliders use natural air currents, just as birds do, to gain height, and in fact the presence of circling birds often shows glider pilots where up-currents can be found. Where birds have the advantage—gliding enthusiasts sometimes call it an unfair advantage—is in being able to flap their wings as they search for "lift."

Looking for "lift" is the glider pilot's great preoccupation. Some people imagine that once it is launched a glider needs only a deft touch on the controls now and then to keep it soaring higher and higher in blissful silence. The silence is blissful all right; but the air is a tricky medium, and the pilot needs all the ingenuity and skill he can muster to keep the machine in the air. Loss of lift or bad judgment can bring him down after a few minutes while the more skilful man flies serenely on.

There is no magic, only common-sense aerodynamics, involved. A glider is heavier than air, and to maintain flying speed its nose must be pointed downwards. It will then lose height—let us say at four feet a second. Even to maintain his height the

pilot must find lift equivalent to this, and to gain height he must, of course, find even greater lift.

Where does he find lift? There are two main types of rising air. The simpler one to understand is hill lift: when the wind blows across the ground and comes against a cliff or a ridge of hills, thousands of tons of air are deflected upwards. This air will rise several hundred feet above the ridge, providing an area of certain lift for the glider pilot. Here you have the explanation of the sites chosen by gliding clubs in Britain. They are nearly all situated on or near the tops of hills facing the prevailing wind, so that immediately after being launched into the wind the glider finds itself in a current of rising air. The Yorkshire Gliding Club has this kind of favourable position at Sutton Bank, near Thirsk; so have the Midland Club at Long Mynd, the Derby and Lancs Club at Camp-hill, and the Scottish Gliding Union at Bishop Hill, Kinross-shire.

Then there are thermal currents, caused by rising warm air. The air, heated by local conditions on the ground, such as sun-warmed rocks, rises and cools until the water vapour in it condenses, forming a cloud, so that the presence of a cumulus cloud is generally a sign of thermal lift. The glider pilot can either gain height by flying into the air currents which are "feeding" the cloud, or fly into the cloud itself and rise in a spiral. The bigger the cloud, the bigger the lift, and inside a thunder cloud you may find up-currents of thirty or forty feet per second. This would be fine but for the hail, rain, lightning



Gliders assembled for action on Dunstable Downs in Bedfordshire

and correspondingly strong down-currents you also find inside. To tackle these brutes you need an extremely sturdy sailplane equipped with blind-flying instruments and oxygen, and considerably more courage and experience than I have.

Dealing with thunder clouds is a far cry from the gentle employment of thermals by comparative beginners like myself. I only wish I could convey some of the thrill and exhilaration, and the feeling of unusual satisfaction, which flying alone in a glider affords. But descriptions are useless. It is only when you have tasted the sensation of soaring in silence above the countryside, completely your own master, that you realise why gliding has become so popular.

NEWS IN PICTURES



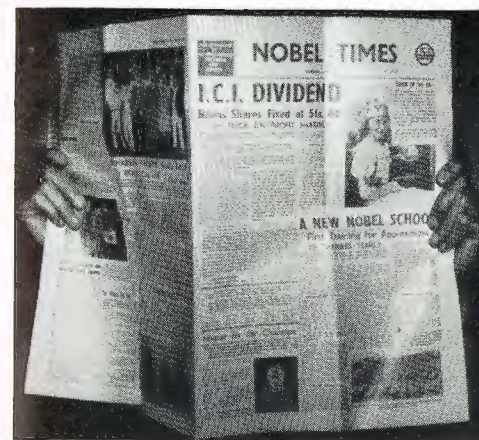
The Queen and the Duke of Edinburgh visited Grange-mouth Works on 2nd July. ABOVE: The Queen meets Mr. A. Hunter, workers' chairman on the Works Council. RIGHT: The Queen talks to Dr. J. Avery, Dyestuffs Division chairman, while the Duke has a word with Mr. P. K. Standring, I.C.I. director responsible for Dyestuffs and Pharmaceuticals



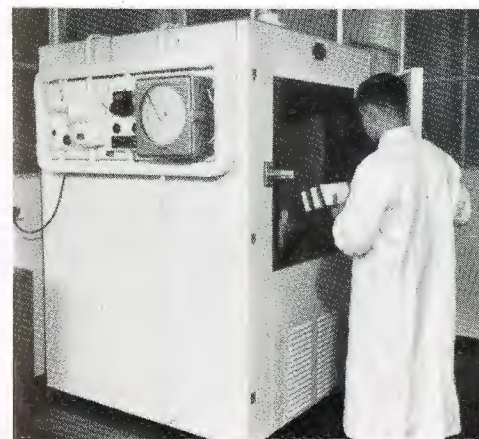
The royal route throughout the factory was lined by employees and their wives and children. (Story on page 248.)



Designed to harmonise with the landscape, surrounded by gardens, this technical service building is part of the new 'Terylene' Council headquarters at Harrogate. It was officially opened by Sir Alexander Fleck in June



Fortnightly paper, "Nobel Times," is now enjoyed by Nobel Division. It is edited by Harry Hutchison, Division Publicity Officer



Fridge to simulate winter conditions is in new Paints development labs. (Story on page 250.)



A handsome sports pavilion, with refreshment room, bar and dance floor, was opened at Paints Division's Slough recreation club. (Story on page 251.)



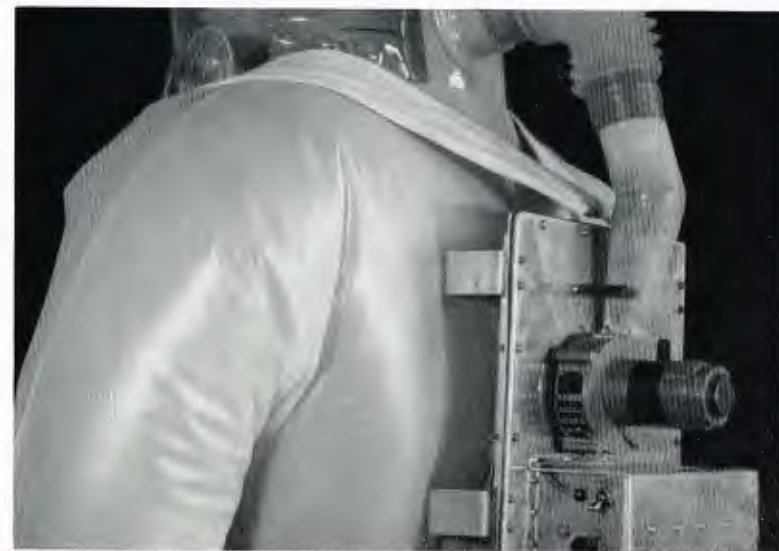
Rock salt can be stored out of doors, according to recent trials by Salt Division. Two 25-ton heaps were laid down, one uncovered, the other covered with tarpaulins. After six months a toothed grab (left) made little impression on the uncovered heap. The covered heap (right) ran freely through the fingers, still handled easily after another six months' exposure



Leading the field. Apprentice fitter Ron Norton of Plastics Division won Venture Grand Prix in record time



Sold after 99 years in the Cheshire salt trade: the 24-ton tug "Fire Fly" ties up after making her last trip for the Salt Division



Spaceman look (right) is worn by workers for protection against irritating dusts at Alkali Division experimental plant. Air, drawn through a filter by a motor on the harness pack (above), leaves suit at exits by hands and feet. The suit was first tried out last December and has since been patented.



Races in Thames and Medway were won by Nobel barge "Dreadnought." Skipper J. Spillett had three masters as crew



First aid success was scored by Winnington Works at ROSPA competition. Captain F. Hough had father (front left) in team



New library for Dyestuffs Division's 40,000 volumes was opened by Mr. C. Paine. Lecture theatre (above) and main library (below) are typical of up-to-date layout. (Story on page 249.)



Mr. A. J. Ker, Dyestuffs Division labour manager, who retired at end of May



Miss Olwen Foster, of 'Terylene' Council, beat women's $\frac{1}{2}$ mile record by 4.1 sec.

I.C.I. NEWS

ROYAL VISITORS AT GRANGEMOUTH

HER Majesty the Queen and His Royal Highness the Duke of Edinburgh visited the Grangemouth Works of Dyestuffs Division on 2nd July during their tour of West Lothian and Stirlingshire. (Pictures on page 244.)

Grangemouth Works, which also makes chemical intermediates and medicinal products, is most noted for the production of very high quality dyestuffs—the first really fast green dyestuff ever made, 'Caledon' Jade Green, was discovered there. The focal point of the royal tour was G2 shed, one of the factory's most up-to-date plants, where several products, including 'Caledon' Jade Green,



A happy picture of the Queen at Grangemouth with Mr. P. K. Standring

are made. In a specially built forecourt to the shed displays of dyed fabrics and other interesting exhibits were arranged.

The sun shone brilliantly throughout the visit and enabled employees and their wives to see the royal couple in ideal conditions. The Queen and the Duke were attended by Mary, Duchess of Devonshire, the Secretary of State for Scotland, Mr. James Stuart (Minister in attendance), Lt. Col. the Rt. Hon. Sir Michael Adeane, Lt. Col. Hon. Martin Charteris and Lt. Cdr. David Loram, R.N.

In the forecourt of G2 shed the Queen was met by the Lord Lieutenant of Stirlingshire, Capt. Sir Ian Bolton, Bart., Bailie J. Tennent, deputising for the Provost of Grangemouth, who was away ill, and Mr. P. K. Standring, I.C.I. Director responsible for Dyestuffs and Pharmaceuticals Divisions. In addition to Mr. Standring the chairman of Dyestuffs Division, Dr. J. Avery, and the two Division managing directors, Mr. H. Jackson and Mr. H. Smith, were presented, followed by Dr. W. G. Reid (Grangemouth Works manager), Dr. A. Y. Livingstone, Mr. J. C. Swanson and Mr. G. Underwood (assistant works managers), Mr. A. Hunter (chairman of the workers' representatives on the Works Council), and Mr. J. L. Binnie, who at 84 is the oldest of the works pensioners.

After inspecting the exhibition the royal party made a tour of the manufacturing plant in G2 shed, where the head of the department, Dr. R. W. Lapsley, the Shed Superintendent, Mr. G. B. Yuille, and shift foreman Mr. J. Young were introduced to and spoke with the Queen and the Duke.

On leaving the shed Her Majesty and His Royal Highness signed the visitors' book and left to the cheers of some 3000 people lining the royal route through the factory.

ALKALI DIVISION

Mr. A. W. Tangye

The death of Mr. Albert W. Tangye on 27th May at the age of 89 severs one of the few remaining personal links with the original partnership of Dr. Ludwig Mond and

Sir John Brunner. For Albert Tangye, who retired from the directorate of Brunner, Mond & Co. Ltd. in 1927 soon after the I.C.I. merger had taken place, was prominent among the select group that have come to be known as "Dr. Mond's young men."

After he left Owen's College, Manchester, an interest in the ammonia-soda process led him to apply to Ludwig Mond for a position on his staff. Mr. Tangye has described how, as a youth of 19, he met that "remarkable personage" Ludwig Mond for the first time. Just in from a tour of the works, wearing a long black overcoat and shapeless, broad-brimmed hat covered with white dust, Mond, despite his somewhat fearsome appearance, met the youthful applicant with a "remarkably amiable smile."

The interview was a success, for young Tangye was put in charge of the laboratory at Sandbach Works for a salary of £1 a week. During his two years at Sandbach Mr. Tangye was responsible for the discovery and manufacture of sesquicarbonate, the process being subsequently patented by Messrs. J. I. Watts and W. A. Richards, at that time managers at Sandbach. In 1887 he was called to Winnington to assist Dr. Eschellmann, then engaged on experimental process work for producing bleaching powder.

In June 1900 Dr. Mond sent Mr. Tangye, with T. A. Johnson and C. F. Poole, to take over the working of the Leblanc and ammonia-soda plants at Lostock which Brunner, Mond & Co. had bought. The Leblanc plant had been overworked and repairs neglected. Putting it on its feet was a tremendous task, but Mr. Tangye and his colleagues tackled it manfully.

After the outbreak of the first world war Mr. Tangye was made solely responsible for the production of phenol from benzole for nitration to picric acid. Lord Moulton, the Minister of Munitions, had called for five tons a week for the nitrating firms. Under Tangye's leadership between 1915 and 1919 phenol output averaged 72 tons a week. For his work Mr. Tangye received the O.B.E., and in 1919 he was appointed a director of Brunner, Mond & Co.

Subsequently he was sent to report on the Government's nitrogen fixation project at Billingham. There he found "no commencement of a factory; only workshops and a few low sheds erected, a few useless castings and bits of apparatus but no plan or preparation." How the Billingham project was accepted by Brunner, Mond & Co. is now Company history, but some evidence of Mr. Tangye's interest in it can be seen from an intricately detailed layout plan and elevation drawing by him.

It is for his less serious drawings, however, that Mr. Tangye and his puckish keen sense of humour will perhaps best be remembered by those who knew this likeable bachelor. Hardly an occasion would pass in the old days of the firm without a series of clever cartoons, a wittily illustrated menu, or lines of apt and brilliant verse bearing the initials A.W.T.

In his later years Mr. Tangye was a familiar figure about Hartford. His abiding interest was the study of natural life, particularly of wild birds.

DYESTUFFS DIVISION

Development Director opens New Library

A new library block (pictures on page 247) to house the Division's collection of nearly 40,000 bound volumes and 20,000 pamphlets was opened by Mr. C. Paine, I.C.I. Development Director, on 27th June.



(Photo: Manchester Evening Chronicle)

Mr. C. Paine (second from left) with Mr. H. Jackson, Dr. J. Avery and Mr. H. Harrison after opening the new library

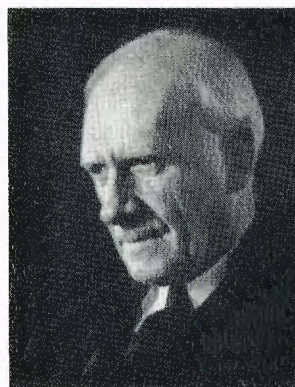
The total floor area of the new building is approximately 17,000 sq. ft. The Main Library, which measures 75 ft. by 45 ft., provides working and seating space for forty people. The lecture theatre, which is very up to date, is on the top floor and has seating accommodation for 156; it is equipped with projection facilities for all types of lantern slides, film strips and ciné film. The workshop on the ground floor is equipped for repair work on books and pamphlets, cover and case making, report binding and so forth; photo-copying apparatus is provided in a small darkroom off the workshop.

The chairman of Dyestuffs Division, Dr. J. Avery, who introduced Mr. Paine at the opening ceremony, said it was most appropriate that Mr. Paine should open officially the library block. Not only was it due largely to his drive that the library is housed as it is today, but he had also spent most of his working days in Dyestuffs Division and had been intimately connected with the building of the whole of the research block right from the time when the first wing was opened seventeen years ago.

Mr. Paine said that from his point of view it was a particularly happy thought of the Division to invite him to perform the opening ceremony; it had been his dream for a long time that this fine library should be housed in a manner worthy of the scientific traditions and the technical inventiveness of this branch of the organic chemical industry.

Sir Robert Robinson

Sir Robert Robinson retires from the Waynflete Chair of Chemistry at Oxford at the end of the academic year in 1955, and with his retirement comes his resignation from his position of consultant to Dyestuffs Division, thus bringing to an end an association lasting thirty-five



Sir Robert Robinson

years. His many friends in the Company will wish him well in the future.

Just after the first world war he directed research for British Dyestuffs Corporation at Huddersfield and later became a consultant. To most Dyestuffs Division chemists his name will be associated with the Dyestuffs Group Research Committee, which was formed in 1929 and which later became the Dyestuffs Division Research Panel. For many years

these meetings have been held on the second Friday of the month, and Sir Robert has probably attended some 250 of them.

During all these years and the increasing complexity of the Division's activities there have been few problems discussed which have not been illuminated by Sir Robert's insight and rapid grasp of essentials. The cumulative effect on the chemical outlook of the Research Department must have been enormous, and many of his suggestions have led, often after modifications and changes, to fruition.

Sir Robert was also a member of the research council set up by I.C.I. in the early 1930's whose function was to advise the Company on the conduct of its fundamental research.

The resignation brings to a close a chapter in the story of the relations between the chemical industry and the universities, a chapter which began with suspicion and distrust on both sides and ends with co-operation and understanding. It is to the credit of those who sat on the D.G.R.C. at its first meetings that they had the foresight to see that this situation could be reached. Sir Robert was one of those. As Professor Robinson of University College, London, then of Oxford, and later as Sir Robert, Nobel Laureate, recipient of the Order of Merit and of almost every honour which was open to him, he has always taken the connection with Dyestuffs Division with the greatest seriousness, and has been an ambassador for industry in the universities and for universities in industry.

Sir Robert is remaining a member of the advisory panel of the I.C.I. scientific quarterly journal *Endeavour*, on which he has served since 1942 except during his term as President of the Royal Society.

METALS DIVISION

M.B.E. for Pensioner

One of Metals Division's best-known pensioners, Mr. Harry Simpson, was awarded the M.B.E. in the Birthday Honours List "for political and public service in Birmingham."

Mr. Simpson, who is now 77, has spent more than fifty years in active political work in Birmingham, and has

addressed meetings at every council and parliamentary election since 1905.

Mr. Simpson began his working life as a pit-boy when he was 12. He joined Kynoch's in 1914 and served the Company for 31 years before he retired.

NOBEL DIVISION

Personnel Director Retires

Mr. Leonard Gale, Division Personnel Director, retired at the end of June after 36 years with the Company.

It was in 1919 that Mr. Gale went to Scotland after service with the East Yorkshire Regiment in the first world war, in which he gained the Military Cross, and rose to the rank of Major.

His great interest with the Company has been with labour matters, a task to which he brought sympathy and understanding of the other man's point of view. He is a good companion, as very many people in Nobel Division and throughout the whole of I.C.I. have found in these thirty-six years.

In January 1930 Mr. Gale became Labour Manager of the Explosives Group (now Nobel Division), and later Division Labour Manager.

At the outbreak of the second world war he commanded the 56th Light A.A. Battery T.A.R., and was Commanding officer 8th (Ardeer) Battalion of the Ayrshire Home Guard with the rank of Colonel. He has been vice-president, and later president, of the Institute of Personnel Management, and his consuming interests have been in that most important branch of industrial affairs. For many years he was a member of the Ardeer Recreation Executive Council, of which he was chairman.

It was on 1st August 1951 that he became Personnel Director of the Division, a post he has held with distinction.

Dr. A. C. Richardson, Works Manager at Ardeer Factory since 1948, succeeds Mr. Gale as Personnel Director.

PAINTS DIVISION

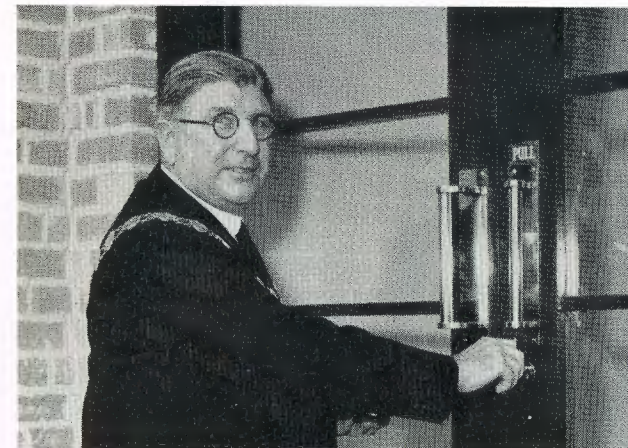
Development Labs Doubled

The Mayor of Slough, Alderman A. W. J. Pusey, J.P., officially opened the Division's new development laboratories at Slough on 28th June.

The new building doubles the existing accommodation of the Development Department. In addition to the latest laboratory-scale paint-making machinery, paint-testing equipment (picture on page 245) and photographic laboratories, it includes two testing rooms in which the



Mr. L. Gale



The Mayor of Slough opens the new development laboratories

atmosphere is automatically controlled within narrow limits. These testing rooms will make it possible to study the behaviour of paints in temperatures ranging from 0° to 40° C. and relative humidity from 50 to 95% at any temperatures in the range.

The new laboratories will enable Paints Division (which already spends more on research, development and technical service than any other paint company in the country) to extend the vital link between its research organisation and the paint-consuming industries.

This was emphasised in a speech by Mr. C. Paine, I.C.I. Development Director, at the opening ceremony. "I feel most profoundly," he said, "that laboratories of this kind have a tremendous importance in the proper progressive development of modern industry."

Chairman cuts the Tape

Some 200 members of Slough Recreation Club, accompanied by their families and friends, attended the official opening of the club's new pavilion at Stoke Green on 4th June. Mr. L. H. Williams, the Division chairman, performed the opening ceremony by cutting the tape. During a short speech, Mr. Williams, who was accompanied by Mrs. Williams, paid tribute to Mr. A. C. Gosling (Division Engineering Dept., Slough), who had supervised the erection of the building.

The new pavilion (picture on page 245) is a fine and valuable addition to Slough Recreation Club's amenities. It contains, on the first floor, a spacious tea and refreshment room, with an excellent dance floor. There is also a bar, while on the ground floor there are showers.

A full sports programme had been arranged for the afternoon. There was a bowls match against a team from Plastics Division, and a number of mixed netball teams took part in a tournament. In ideal weather the Tennis Section showed its paces—and latest fashions—while at the other end of the sports ground the archers, experts and beginners, young and old, tried their luck against a capricious wind.

PLANT PROTECTION LTD.

Practical Expert

People for whom the words "technical director" connote backroom remoteness and devotion to desk work will receive a salutary shock from a new book by Dr. E. Holmes, Technical Director of Plant Protection Ltd. *Practical Plant Protection* (Constable & Co., 15s.) is the work of a practical man no less than an expert. Dr. Holmes was brought up on a Warwickshire farm and learned farming the hard way, and since graduating from Birmingham University he has spent as much time in the field as in the laboratory.

Head of the Technical Department of Plant Protection since 1940, he has travelled the world from Palestine to



Dr. Holmes supervises a weedkilling trial at Fernhurst Research Station

Brazil on his investigations of crop protection problems. Mercury seed dressings, the fumigation of citrus trees, the field uses of B.H.C. and 'Agroxone,' wireworm seed dressings and the first low-volume sprayer have all been developed for practical use by teams led by Dr. Holmes.

Dr. R. E. Slade, former I.C.I. research manager and himself a farmer, writes:

A perusal of this volume shows how familiar the author has made himself with the arts of farming and agriculture, the work of the research laboratories, the problems of the chemical manufacturer and the best approach to the farmer.

Dr. Holmes in the preface and Sir James Scott Watson in a foreword emphasise that the book is intended for the average grower or farmer. It is a very useful book for the farmer; but it is a little unkind to label him "average" because he appreciates and enjoys the book. (Perhaps an "average" farmer is just one who grows a solanum tuberosum and calls it a potato!)

The book will be of great interest to all farmers and to salesmen of plant protection products, as well as to research workers who like to know something of the industries they are benefiting.

I.C.I. CARIBBEAN ZONE

Messenger's 20 Years' Service



This picture shows Mr. Stanley Pitter, senior messenger of the I.C.I. Caribbean Zone office in Kingston, Jamaica, receiving an illuminated certificate recording 20 years' service from Cdr. W. de M. Clarke, manager of I.C.I. Jamaica. With them is Mr. J. F. Mitchell, assistant manager.

Before he joined I.C.I. Stanley Pitter was butler to the Greaves family, whose house Cdr. Clarke rented soon after he arrived in Jamaica in 1935. He was not required as a butler, but Lieut. Cdr. Greaves spoke so highly of his services to the family that he was given the post of messenger in the newly established I.C.I. office.

Stanley Pitter's courtesy and readiness to tackle any job have been much appreciated by all who have served with I.C.I. Jamaica and by I.C.I. visitors to the country.

I.C.I. (CHINA)

Chairman Retires

In London recently Mr. C. B. Cook, retiring chairman of I.C.I. (China), was presented by Mr. C. R. Prichard, I.C.I. Overseas Director, with an inscribed silver salver commemorating the fact that he had completed 40 years' service with I.C.I. Mr. Cook's service is believed to be a record for any expatriate member of an I.C.I. overseas company.



Mr. C. B. Cook

Mr. Cook joined Brunner, Mond & Co. Ltd. at Warrington in 1915, served with the Royal Flying Corps from 1915 to 1919, and went out to Shanghai in 1919 shortly after his demobilisa-

tion. After his initial service in Shanghai he became manager in Chefoo and then spent eight years as manager in Peking, later becoming divisional manager in Tientsin.

During the war he was seconded for service with the British Purchasing Mission in the U.S.A. At the end of the war he was attached for some months to the Far East Department to assist in the repatriation of staff of I.C.I. (China) who had been interned by the Japanese, and himself returned to China in 1946. He was appointed a director of I.C.I. (China) in 1944, and became deputy chairman in 1953 and chairman in 1954.

Mr. and Mrs. Cook are settling in Wiltshire, and they take with them the best wishes of all their friends, both in China and at home.

I.C.I. (EXPORT) LISBON

Sr. A. S. Marques

Antonio Sebastião Marques, a familiar and well-liked figure at the Lisbon office of I.C.I. (Export) who had been with I.C.I. for nearly twenty-four years, died recently after a very short illness.

Mr. W. C. Collett, to whom Antonio had been chauffeur for the whole of his service, writes:

During the early years the work I was undertaking in Portugal was mainly that of field experiments and demonstrations to stimulate the use of fertilizers. Antonio soon became part of this work, which took us all over the country. It is interesting to record that during the period from 1931 until the war broke out Antonio and I motored some 350,000 kilometres in Portugal and wore out three cars in the process. There is no town in the country and very few villages that we did not visit at some time or other and where Antonio was equally as well known as I was.

Travelling in those days was not always as easy as it is today, as roads were bad, and the sleeping and feeding arrangements were frequently very primitive indeed. From the beginning Antonio entered into the spirit of the thing and never complained. He would take off his coat and help to apply the fertilizers or lend a hand with the threshing; he never sat down to watch other people work.

When the war came and I was seconded to the Embassy, Antonio and the car went with me and we spent five useful and interesting years in H.M. service, both in Lisbon and in the provinces on other missions.

Antonio became more widely known within I.C.I. following the opening of an I.C.I. liaison office in Lisbon in 1945, which developed into a branch of I.C.I. (Export) in 1948. He always welcomed visitors with a smile, and although he never learned any English he had a surprising knack of knowing what people wanted, and nothing was ever too much trouble. He will be sadly missed.

The family tradition is being carried on by his two sons, Rui and Fernando, who have been with the Company for a number of years and are now plastics and chemicals salesmen respectively.

Harvest Time

By Wynne M. Whiting (Manchester Area Office)

TRAVELLING south last October and gazing out of the railway compartment window I was shocked to see the corn stooks, and even occasional haystacks, almost black, still standing in the water-logged fields. Turning the clock back to my own brief span of nine and a half years on the land, my sympathy went out to the farmers as I remembered how the Boss used to coax, swear at and plead with the barometer during haytime and harvest. If the weather were kind, he regarded it as a personal triumph; if not, then woe betide his staff!

The Boss was middle-aged, and in appearance every inch of his tremendous stature, fore and aft, a farmer. His face was weather-beaten and he was totally bald, causing much amusement by his frequent visits to the barber.

He had a dry sense of humour and the most infectious laugh I have ever heard. But he could be bad-tempered too, and always whistled the same tune when he was disgruntled; which was unconsciously very considerate of him, as it served as a warning to the rest of the staff. Neither he nor any of us could name the tune, but we all came to know it as well as "God save the Queen." Sometimes he would say "Am I handsome?" We always assured him wholeheartedly that he was exactly like Robert Taylor and duly received a block of chocolate.

At the time about which I am writing he was "blessed" with five land girls. "Women!" he would say, in a tone impossible to convey on paper; but he was very tolerant with us, and we worked hard for him.

There was Dorreen (spelt with 2 r's!)—all 14 stone of her; Mary, who was madly in love with an airman and every time a plane went over would wave her arms frantically and yell "There's Harry!" Ivy, a very quiet girl; Kathleen, Ivy's opposite; and myself—no comment!

Then, of course, there were the lads who delighted in "playful" little tricks such as tying dead mice on

our bicycle handlebars or stringing our bikes to the beams in the cycle shed, and the like. Tom, the farm wit; Alan, called "Nigs"; redhead Johnny Kelly; and Johnny Buckley, famous for his descent into a wheelbarrow of pig muck to emerge, dripping, with only the whites of his eyes showing in a face that did not know whether to laugh or cry. Bob, the tough he-man, and Barney, the Irishman, who only turned up for work when his horses let him down. What a motley crew we were! Nevertheless we all pulled together as a team in haytime.

I soon discovered that haymaking, far from being a glamorous pastime which the "Lend a hand on the land" posters would have led the uninitiated to believe, is just about the dirtiest, hottest and most tiring job on the farm. Whoever said "Horses sweat, men perspire, and ladies merely glow" had never been a land girl in haytime.

Nevertheless it was the happiest season of the year, the atmosphere being rather like that of a prolonged office picnic, because, generally speaking, it was the only time the whole of the staff worked together. Always supposing, of course, that the weather was fine, we looked forward to haymaking from the moment the mowing machine emerged from its winter coat of grease and sacking. Then eventually the other machines—the swath turner and hayrake—would take their turn in the cartshed after their hibernation, to be overhauled in readiness for their brief vital appearance.

As the hay ripened, the Boss, with the air of an expectant father, would listen anxiously to every weather forecast until at last he gave the word "Go!" and the air was filled with the chatter of flashing teeth and the smell of new-mown hay as swath after swath fell before the relentless blade.

In the early days of the war we boasted no tractor and the work was done with our nine horses. Most of the mowing, therefore, was done in the morning

or evening in the comparative cool. As the meadowland was about two miles from the home farm it used to take us at least five weeks in good weather, working from dawn till dusk, before the last load was stacked. Skilled male labour too was practically non-existent at that period.

We girls wore as little as possible and the lads stripped to their waists, until we were all the delicious golden brown one sees on inviting holiday posters. Each morning we all milked and did the jobs which were absolutely necessary on the farm, and then set off to the meadows, plus tackle. By the time we arrived the dew had disappeared and we set about our various chores—mowing, swath-turning, raking—but the best fun to the inexperienced was loading the haycarts, and many a loader has disappeared under a stack of hay to the accompaniment of hilarious laughter from the rest of the field. At lunchtime we watered the horses and tethered them to trees with a heap of hay apiece.

Our return must have seemed all too soon for them. The Boss used to arm us with gallons of cider which we kept in the "fridge"—a nearby stream. Every afternoon at 5.30 one of the girls would bring tea from the farm, and she was always heralded as the best-looking girl of the day—my only claim to beauty!

Tea was a lively affair on the river bank, shifting our positions frequently as someone would complain of ants in their pants. "Swop you a spam for a jam" became a catchphrase, and how we always hoped to find an extra sandwich, though it became somewhat disintegrated in the ensuing fight for possession. During tea we used to leave the horses yoked up and draw them to a haycock, as it was not worth unhitching them for half an hour. And so to work again, usually with extra hands, for a schoolboy with the sobriquet "duckfoot" and several Irishmen used to help in their spare time.

At about 8 o'clock the Boss used to release a couple of us to go back to the farm to milk the cows, who objected strongly to taking second place. They would assemble round the cow pasture gate at their normal milking time, but one could almost rely on them wandering away, disgusted, five minutes before one wished to tie them up. Hence a long walk over the pasture, to be met by a shrug of the bovine shoulder which might have been interpreted "Serves you right—we can't wait for ever!"

And so, at last, home, supper, a bath and bed!

Ah well—happy days!



The Boss used to arm us with gallons of cider, which we kept in the "fridge"—a nearby stream

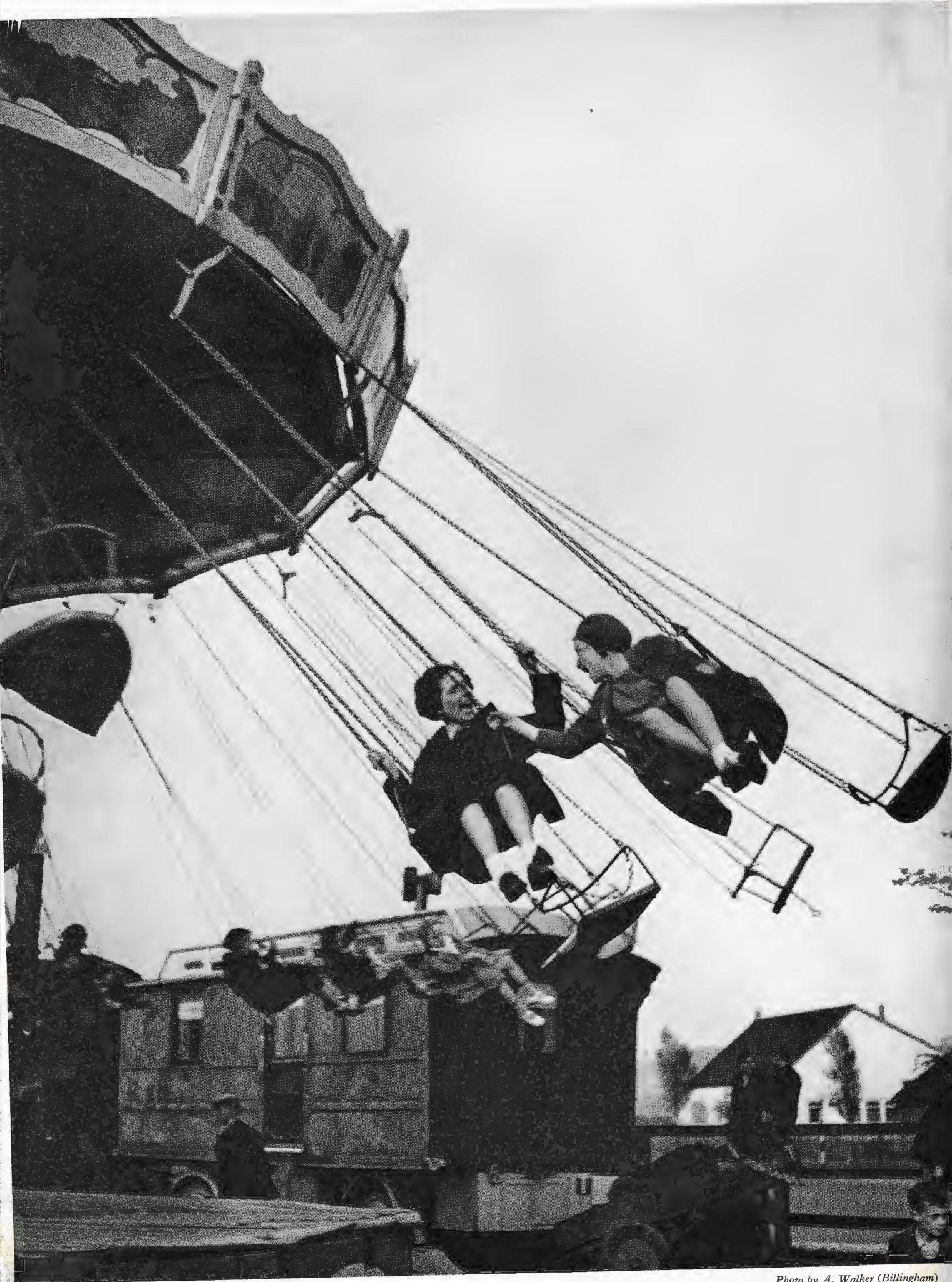


Photo by A. Walker (Billingham)